Fermilab Today

Friday, February 2, 2007

Calendar

Fri., February 2
3:30 p.m. Director's Coffee Break - 2nd floor crossover
4:00 p.m. Joint Experimental Theoretical Physics Seminar - 1 West
Speaker: A. Anastassov, Rutgers University
Title: Search for the MSSM Higgs in the Tau Pair Decay Mode at CDF

Mon., February 5
2:30 p.m. Particle Astrophysics Seminar - Curia II
Speaker: M. Cirelli, CEA/Saclay
Title: Cosmological Constraints on Light Sterile Neutrinos (and The Ways Around Them)
3:30 p.m. DIRECTOR'S COFFEE BREAK - 2nd Flr X-Over
4:00 p.m. All Experimenters' Meeting - Curia II
Special Topics: LHC@FNAL Remote Ops Center;
Next Fill of COUPP Bubble Chamber

Click here for NALCAL, a weekly calendar with links to additional information.

Weather

Snow Flurries 12°/6°

Extended Forecast
Weather at Fermilab

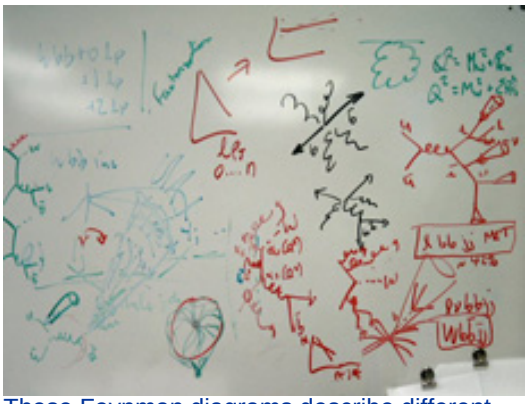
Current Security Status

Secon Level 3

Wilson Hall Cafe

Feature Story

What's on your whiteboard?



These Feynman diagrams describe different particle collisions and their possible results. Computer simulations help physicists understand which ones are important.

Although Michael Begel wipes his whiteboard clean every night, it doesn't take long for this DZero physicist to fill it to the colorful capacity shown above. A postdoc from the University of Rochester, Begel has been working at Fermilab since 1991 and with DZero since 1999. He and his colleagues use Monte Carlo mathematical simulations, which calculate the behavior of random physical systems, to predict possible detector outcomes. He also uses dry-erase markers to sketch them.

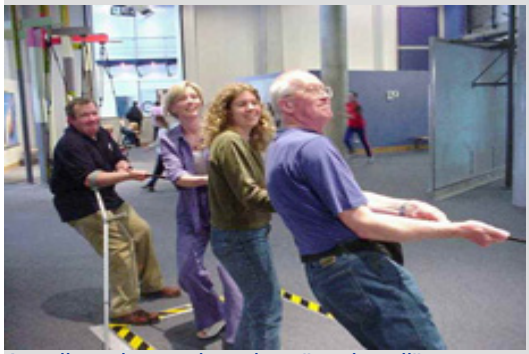
The blue and green drawings on the left side of his board describe "jets," or cone-shaped sprays of particles produced when quarks or gluons collide in an accelerator. Physicists can tune, or specialize, the parameters that feed into their algorithms to produce specific events by combining experimental data with theoretical expectations. They use a Monte Carlo program called Pythia, which was written by a team of authors including Fermilab's Steve Mrenna and Peter Skands and can produce eight to ten million events per week. "You can tell this generator to do anything and it will do it," Begel said. Programs like these can produce particles that have already been observed, like the top quark, or events that are hypothesized, like supersymmetry or the Higgs boson.

"If we want to find the Higgs, we have to get the background physics right," said Begel. For example, the red writing on the right side of the board depicts two very different events

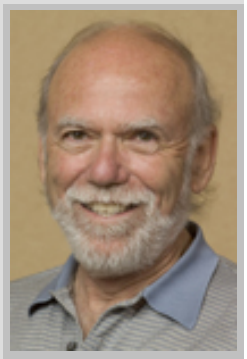
ILC NewsLine

Evolving ILC design: push-pull detector arrangement

This column is written by Barry Barish, director of the Global Design Effort for the International Linear Collider.



A well-engineered modern "push-pull" system will let two sophisticated ILC detectors share a single interaction point.



Barry Barish

"The full realization of the scientific potential of the ILC argues for the construction and operation of two complementary detectors by two international collaborations."

This statement comes from a chapter of the soon to be released ILC Detector Concept Report (DCR), and there are many arguments for having two detectors. They would maximize the scientific opportunities, give the opportunity to cross-check, and provide complementarity and reliability. The case is backed up by generations of successful historical examples in particle physics....
Read More

Readers Write

Friday, February 2
-Old Fashioned Ham & Bean
-Super Bowl Tail Gate Menu
-Braised Pork Chops
-Stuffed Manicotti
-Roasted Veggie & Provolone Panini
-Assorted Slice Pizza

Wilson Hall Cafe Menu

Chez Leon

Wednesday, February 7
Lunch
Trout with Saffron Butter Sauce
Winter Vegetable Medley
Plum and Marzipan Tart

Thursday, February 8
Dinner
Green Bean, Feta and Walnut Salad
Spanish Bouillabaisse
Cappuccino Soufflé

Chez Leon Menu
Call x4598 to make your reservation.

Archives

Fermilab Today

Result of the Week

Safety Tip of the Week

ILC NewsLine

Info

Fermilab Today is online at:
www.fnal.gov/today/

Send comments and suggestions to:
today@fnal.gov

(here, a combination of leptons, W-bosons, b-quarks and jets) that produce similar top quark/anti-top quark signatures. These kinds of similarities can be a source of error when looking for specific events. So if the Higgs decays into two b-quarks, then physicists need to know all the other possible sources of b-quarks in their design to be sure that what they're observing is actually the Higgs. Simulations will help physicists decide what kinds of signatures to look for--or reject--in their search.

"We're trying to wrinkle out the principles of nature, to discover new things and to understand the things we already have," said Begel.

--Christine Buckley

In the News

FYI: The AIP Bulletin of Science Policy News
February 1, 2007

House Votes to Increase FY 2007 DOE Science, NSF, NIST Funding

Yesterday afternoon, the House of Representatives voted to substantially increase FY 2007 funding for the Department of Energy Office of Science, the National Science Foundation, and the National Institute of Standards and Technology. H.J. Resolution 20 now goes to the Senate, with the intention to get this bill on the President's desk before current funding expires on February 15.

This $463.5 billion bill, written by House Appropriations Committee Chairman David R. Obey (D-WI) and Senate Appropriations Committee Chairman Robert C. Byrd (D-WV) and their staffs, would complete the FY 2007 funding cycle. Nine appropriations bills were left unfinished when the last Congress adjourned (the Departments of Defense and Homeland Security were funded.) The new Democratic leadership wants to complete work on the funding legislation as quickly as possible. President George Bush sends his FY 2008 budget request to Congress on Monday, February 5.

Read More

'85 Bears

Dear FT:

During the several years that I have been the Lab 6 building manager, I have noticed these words inscribed on the sidewalk [above].

As far as I know, we have no plans of installing any sidewalks for the new "2007" Bears. Looks like the '85 Bears will leave an imprint on our sidewalk, as well as our minds.

Best,
Wayne Shaddix
Lab 6 Building Manager

Announcements

New Computer Programming Course

The second course in the ongoing "Selected Topics in Computer Programming" series will take place on Tuesday, February 13.

Presented in a single 150-minute session, this second offering, "Fine Points of C++ Pointers: Dumb, Smart, and Smarter," is aimed at programmers with C++ experience, and will deal in depth with issues related to pointer manipulation in C++ programs. Attendees will learn best-practice techniques of resource management in modern standard C++, and will be prepared for related new techniques that will become available in the next C++ standard.

There is no cost to attend, and TRAIN credit will be awarded to participants.

Walter Brown, who participates on Fermilab's behalf in the international C++ standardization effort, is the course instructor and series coordinator. He is a member of the Computing Division's Lab and Core Services unit.

Course registration is now open. The course announcement and syllabus are available online.

Classifieds

New classified ads have been posted on *Fermilab Today*.

Upcoming Activities